

Bigger than a breadbox

Sometimes bigger is better

BY DAVE HIRSCHMAN

The first thing you'll notice about Garmin's GPSMAP 696 is its size. In an age when "new" technology is synonymous with "small," Garmin has gone large. Very large.

Garmin's 696 has a sprawling, seven-inch (diagonal) screen that's more than triple the size of its next-largest portable's (the GPSMAP 496). Its retail price, \$3,295, is a whopper, too.

And its hefty, 2.2-pound weight (which jumps to three pounds with the yoke-mounting hardware) makes the 696 a true porker. Even the bricklike GPSMAP 195/295 seem svelte (1.4 pounds) compared to the new offering.



But the 696's capabilities also reach far beyond anything Garmin has ever offered in a portable.

In addition to XM weather, satellite radio, SafeTaxi airport diagrams, and AOPA's *Airport Directory*—which have become mainstays on 496s in the last two years—the 696 adds all U.S. instrument approach plates and high- and low-level IFR en route charts. In fact, a 696 with a current database connected to an aircraft electrical system qualifies as Category II Electronic Flight Bag (EFB), meaning it can replace paper charts and approach plates for FAA Part 91 operations.

As a portable GPS, the 696 can't be certified for IFR flight and must be relegated to a supporting role only. But a 696 can serve as a powerful IFR flight-planning tool since it contains a built-in E6B flight computer, weight-and-balance calculator, and IFR charts and approach plates. The XM weather allows it to display echo tops, freezing levels, turbulence forecasts, pireps, METARs, and TAFs. When connected to a Mode S transponder, the 696 also can display traffic, and

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it has the same five-times-per-second update rate as the 496.

While other aviation GPS manufacturers, notably Bendix/King with its relatively low-priced AV80R (\$750), are adding weather and street mapping to smaller, lighter units, Garmin is pursuing a divergent, high-end strategy. The 696 is a combined EFB/MFD that has the potential to banish paper (including AOPA's *Airport Directory*) from GA cockpits, and provide situational awareness that was previously available only on panel-mounted MFDs that cost \$10,000 or more, excluding installation.

"Our customers have been telling us they want more and more features," said Jim Alpiser, Garmin's director for after-market sales and marketing. "They want a bigger display, airways, charts, approach plates, and flight planning tools on a portable product. The 696 is meant to appeal to corporate pilots flying business jets in complex airspace as well as general aviation pilots looking to enhance safety and situational awareness. It resets the bar for aviation portables."

Flying the 696

The 696 was so new that the manual was still being written when we got our advance unit. Even so, starting the GPS and entering a flight plan follow the familiar logic and knobology of other Garmin products.

I sat in the back of Tom Haines' Bonanza A36 on a recent 4.4-hour trip from Kissimmee, Florida, to AOPA's home base in Frederick, Maryland, and set the 696's weather antenna atop a pile of suitcases and sport coats in the middle of the aircraft. The external GPS antenna wasn't connected at all, but the 696 got full reception from an internal antenna, and the XM receiver worked well despite less-than-ideal antenna placement. The internal battery lasts about two hours and 45 minutes on full brightness while powering the XM antenna. Although the battery didn't last as long as the trip, the unit comes with a plug to tap aircraft power.

I followed our airplane's progress on the SafeTaxi airport diagram and zoomed in to the tightest, 200-foot map scale (the maximum is 800 miles). By the time our engine runup was complete, I had loaded our IFR flight plan, and a familiar magenta line showed the first leg of our trip on the brilliantly lit, oversized map page. The Nexrad radar

display overlying the map showed a long, choppy line of moderate showers stretching from Central Florida through the Appalachians parallel to our route. Satellite images showed solid cloud cover for the first two-thirds of our trip—but only a few green blobs of precipitation in our path.

I followed our progress on the screen as the Toms flew (Haines in the left seat and Horne in the right). When ATC directed us to join V267 to Jacksonville, Florida, I pressed the soft key that toggles the map screen between the VFR sectional and the low-level IFR chart. I've got to confess that Horne managed to dig out the proper heading and radial to follow a bit quicker using the paper chart than I did on the



A "panel" page shows GPS-derived aircraft performance above a low-level IFR chart.

GPS. But I knew I'd get quicker as our trip progressed.

Unlike other portable Garmin GPSs that employ arrow keys to move a cursor, the 696 has a stubby joystick (or "click stick"). I found the stick simple and intuitive. It also serves as a button to highlight display areas, just like the push-button "dual concentric" knobs on the panel-mount Garmin 430/530 series.

The 696's large display has a split-screen function that shows the "panel" on top (a GPS-derived altimeter, vertical speed indicator, groundspeed indicator, turn coordinator, and horizontal situation indicator), while the bottom

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half shows the VFR or IFR chart with an optional weather overlay. A single soft key toggles back and forth between the full- and split-screen displays.

Over South Carolina, moderate rain and turbulence jostled the Bonanza at our flight-planned altitude of 7,000 feet. "How long's this stuff going to last?" Haines asked.

The 696 showed a band of showers closely paralleling our route for the next 200-plus miles. The Nexrad radar showed indefinite tops, but the winds

aloft page showed a stronger tailwind above. Sure enough, climbing to 9,000 feet kept us out of most of the clouds, and our tailwind increased to 20 knots from 12.

The XM weather allowed us to monitor our destination's METARs throughout our trip, and the information made it easy to anticipate improving weather and a visual approach to Runway 23. TAFs are not issued for Frederick, but the 696 cleverly showed the nearest available TAFs (at Martinsburg, West Virginia) on the same screen as the Frederick METAR.



Real-time XM weather overlays VFR or IFR charts that cover the entire United States.

I loaded the ILS Runway 23 approach, reviewed the electronic approach plate, and monitored the split screen from final approach fix to threshold. The GPS "vertical guidance" isn't meant to substitute for an ILS or any other instrument approach procedure. But its lineup and glidepath display corresponded faithfully to our actual position as we tracked the localizer, slightly above glideslope, to touchdown. The vertical guidance disappeared, by design, about 500 feet agl.

Rugged and elegant

The 696 is both chunky and costly compared to all previous portable aviation GPSs.

But it's a rugged and elegant piece of equipment that's sure to find its way to a broad array of GA aircraft. In combination with TSO'd equipment, the 696 will give pilots in otherwise minimally equipped IFR airplanes tremendous situational awareness. For VFR flying, the terrain, obstacles, weather, and airport information displays are unmatched in size and clarity. And for some corporate operations, the bulky 696 will save weight, money, and hassles by allowing operators to go paperless and get the same big picture that has only been available with vastly more expensive, panel-mount avionics.

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